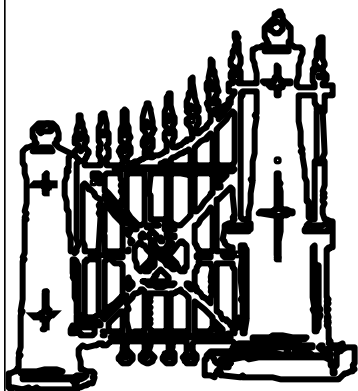


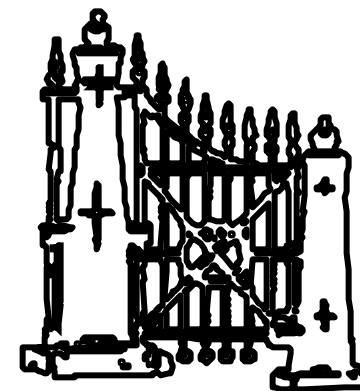


TACOM

Lethality, Survivability, Mobility and
Sustainment for America's Army



OBJECTIVE CREW SERVED WEAPON



Mr. Glen Berg
ATD Manager, OCSW
DSN 880-6906
COM: (973) 724-6906
Email: gberg@pica.army.mil

Tank-automotive & Armaments COMmand



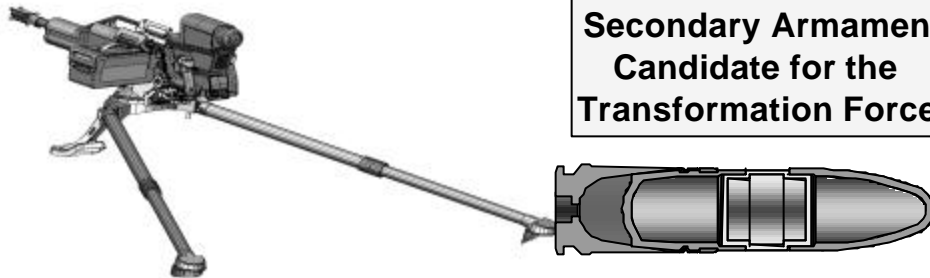
OBJECTIVE CREW SERVED WEAPON ATD (III.WP.1996.02)



50% reduction in
cartridge weight



Secondary Armament
Candidate for the
Transformation Force



60% Lighter than
current systems

Objective: Provides the dismounted warfighter a crew served weapon system more than 100 lbs lighter than the M2 & MK19 MGs, with overwhelming lethality capable of defeating protected, defilade targets & light armor out to 2000m.

Pacing Technologies:

- Ammunition:

- Electro Mechanical Fuze

- Fire Control:

- Laser Steering & Target Tracking

Other ATD Attributes:

- DTO WE.34
- Ability to Defeat Targets in Defilade
- Increased Mobility & Firepower
- Increased Survivability & Standoff
- Improved Target Acquisition
- Full Solution Day/Night Fire Control System
- Reduced Logistics Train
- Total Program Cost - \$54.8M
- Other Peoples Money – USMC \$2.1M

Affordability Metrics-Ammo

Current/threshold/objective

Cost/kill \$326/ \$300 / \$130

Design to Avg Unit Production Cost \$31 / \$29 / \$22

Technology Protection Plan

Is it required? Yes, Submitted 4/26/01

Modeling and Simulation

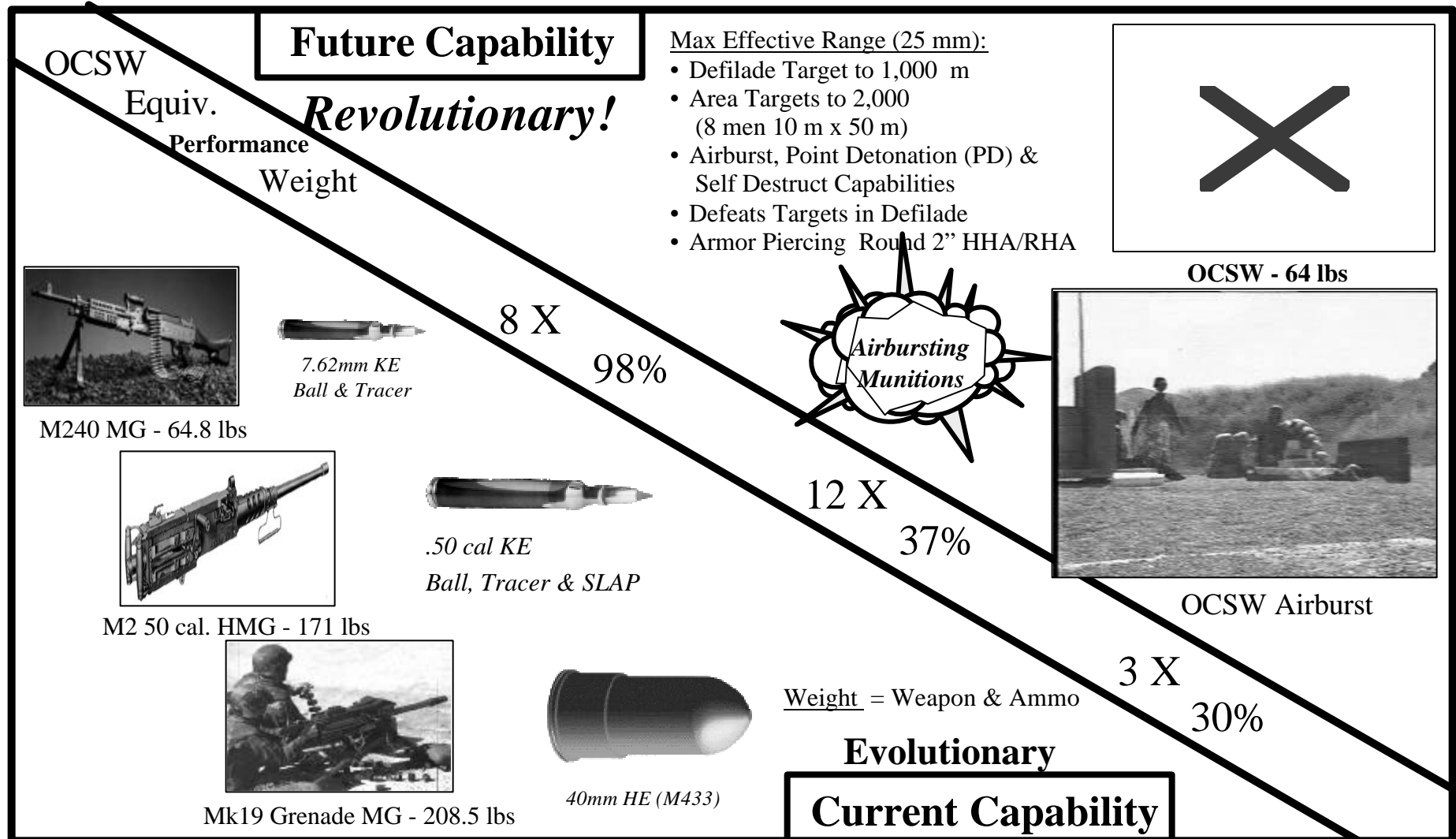
Lethality/Effectiveness Models TRAC & AMSAA

System Pro-E, TA/FC SW Models,

SAST II, T&E Simulators

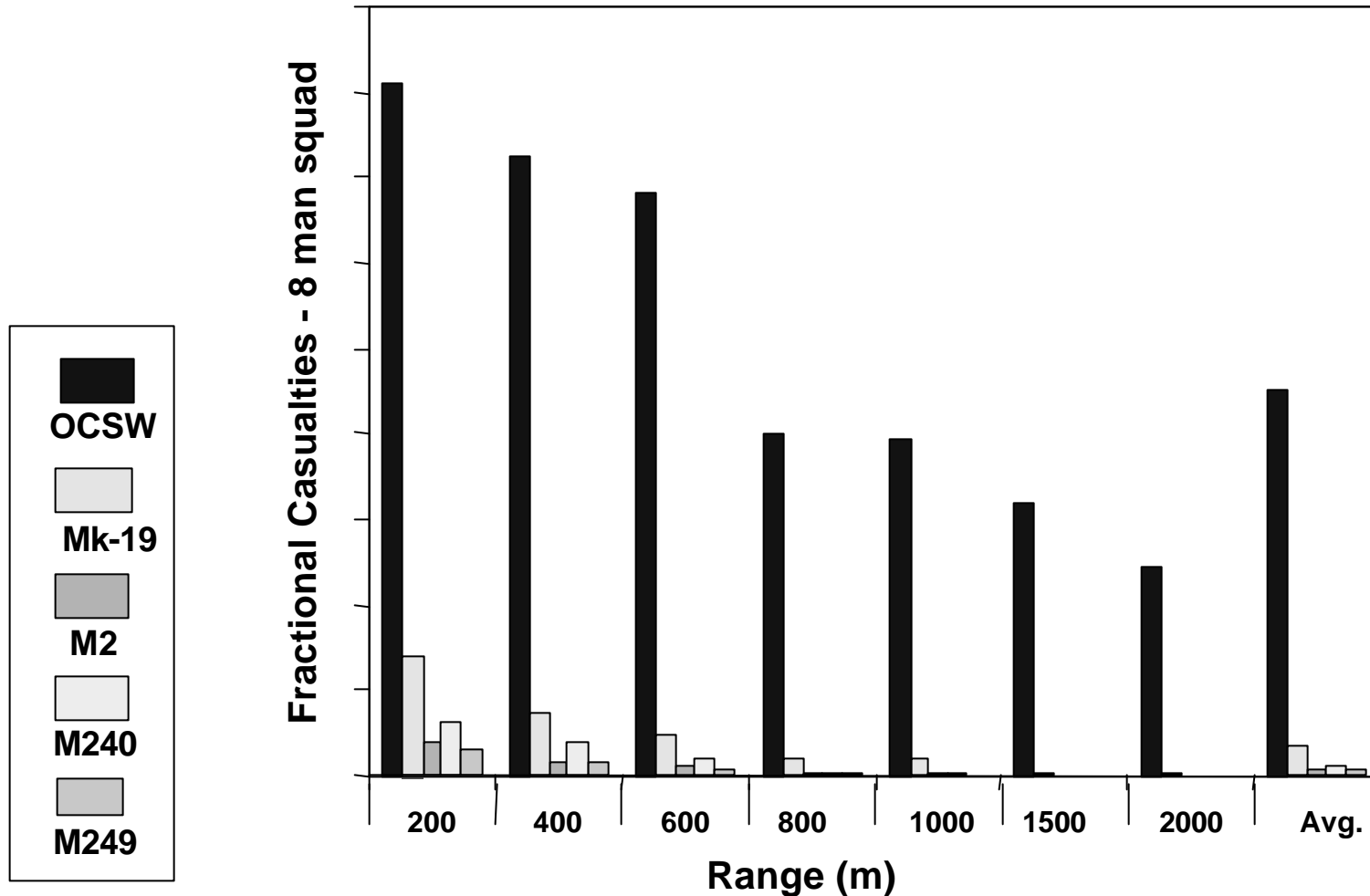


OBJECTIVE CREW SERVED WEAPON REVOLUTION IN SMALL ARMS PERFORMANCE





BASELINE FRACTIONAL CASUALTIES FOR ALL SYSTEMS



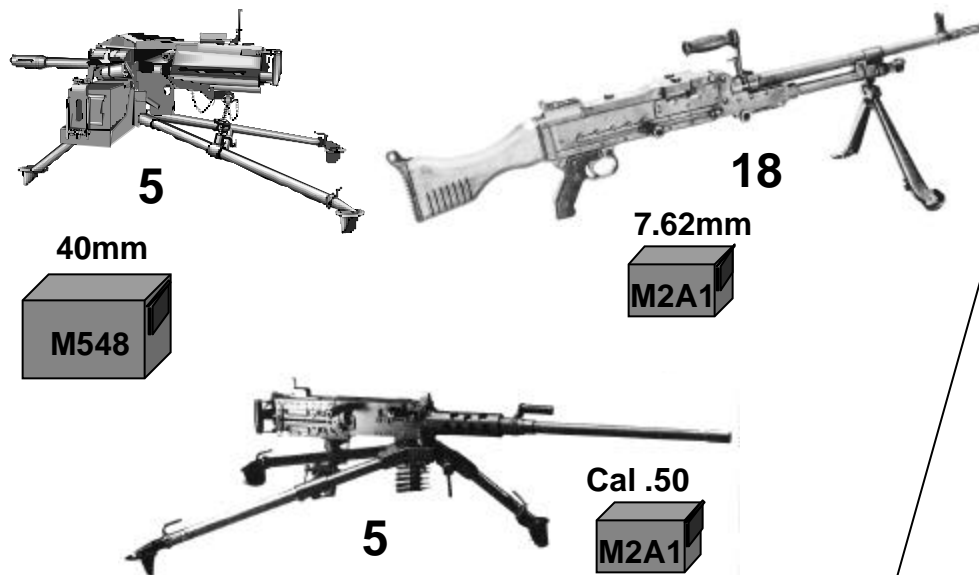


LOGISTICS COMPARISON

(Typical Army Light Infantry Battalion)

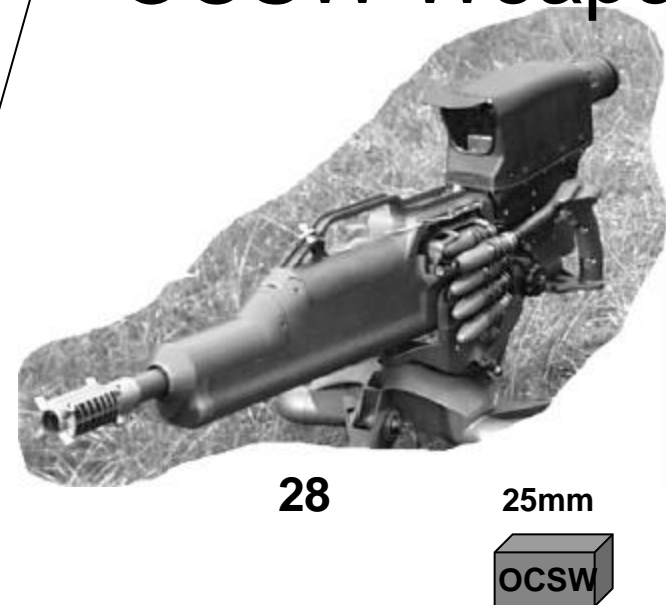


Conventional Weapons



28 Weapons
2136 Lbs

OCSW Weapon



28 Weapons
1134 Lbs



OCSW PAYOFF - ANTI-PERSONNEL ROLE

(TYPICAL MARINE INFANTRY BATTALION)



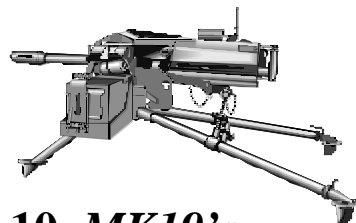
39 Weapons = 3,188 lbs.



23 M240's



6 M2's



10 MK19's

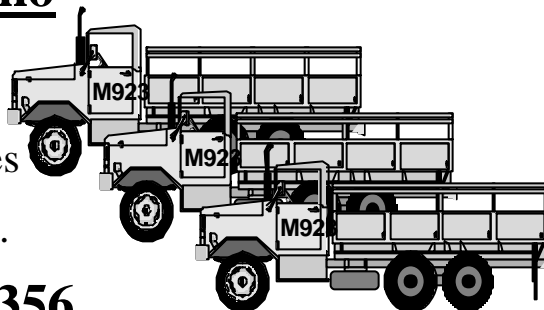
Conventional Ammo

Weight = 31,394 lbs.

9.6 Pallets / **700 Boxes**

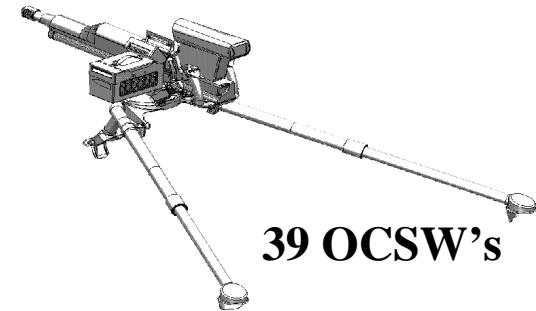
Avg. Box Wt. = 45 lbs.

Ammo Cost = \$295,356



3 Truckloads (5-Ton) / 3 Drivers

39 OCSW's = 1,427 lbs.



39 OCSW's

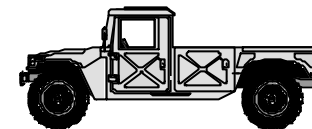
Equivalent OCSW Ammo

Weight = 1,431 lbs.

1.2 Pallets / **103 Boxes**

Avg. Box Wt. = 14 lbs.

Ammo Cost = \$69,428



1 HMMWV / 1 Driver

**Significant Improvement in Cost
Effectiveness**



OCSW SYSTEM

Muzzle Device

- Flash Suppression
- Inherently Reliable

Fuze Setter Contacts

Fire Control System (FCS)

- Direct View Optics (DVO)
- Range Finder/CIDDS/MILES/Pointing Lasers
- CCD Video/FLIR/Tracker module
- Full Solution Ballistic Calculation/Reticle Aimpoint
- Fuze Programming/Powers and sets Fuze
- Digital Compass/Environmental Sensors

Weapon

- Light Weight, 27 lbs.
- 25mm, 220 spm
- Soft Recoil
- Gas Operation

T&E Controls

- Rapid Acquisition
- 1 mil fine adjust

FCS Controls

- Grip mounted switches
- FCS Rear Panel switches
- Lase & Menu select
- Increment/Decrement

Ammo Can

- Right or left mounted
- Linked Belt
- 31 Round Capacity
- All OCSW Ammo Types

Ground Mount

- Lightweight, 12 lbs.
- Stable without ballast
- Height adjustable

Land Warrior Interface

- Lanyard style "breakaway" connector
- Power, data and video over interface
- Compliant to LW requirements

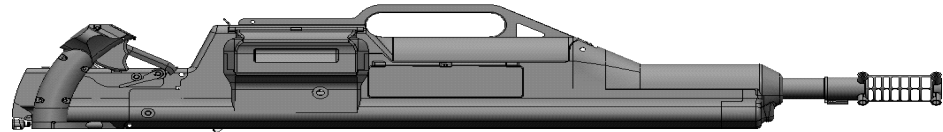


WEAPON INITIATIVES

- **Near Net Shape Fabrication**

Simplified receiver casting

Production Investment Cast aluminum construction



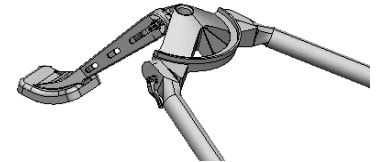
- **Parts Reduction / Avoidance of Special Field Maintenance Tools**

- **No tools attachment of cartridge guide and back cover**

Front and top receiver cover removable without tools for field strip

- **CAD Utilization: 95 % Weapon / Mount Parts Reduction**

Initial Prototype (340 parts); 1st Deliverable (293 parts), Goal (283 parts).



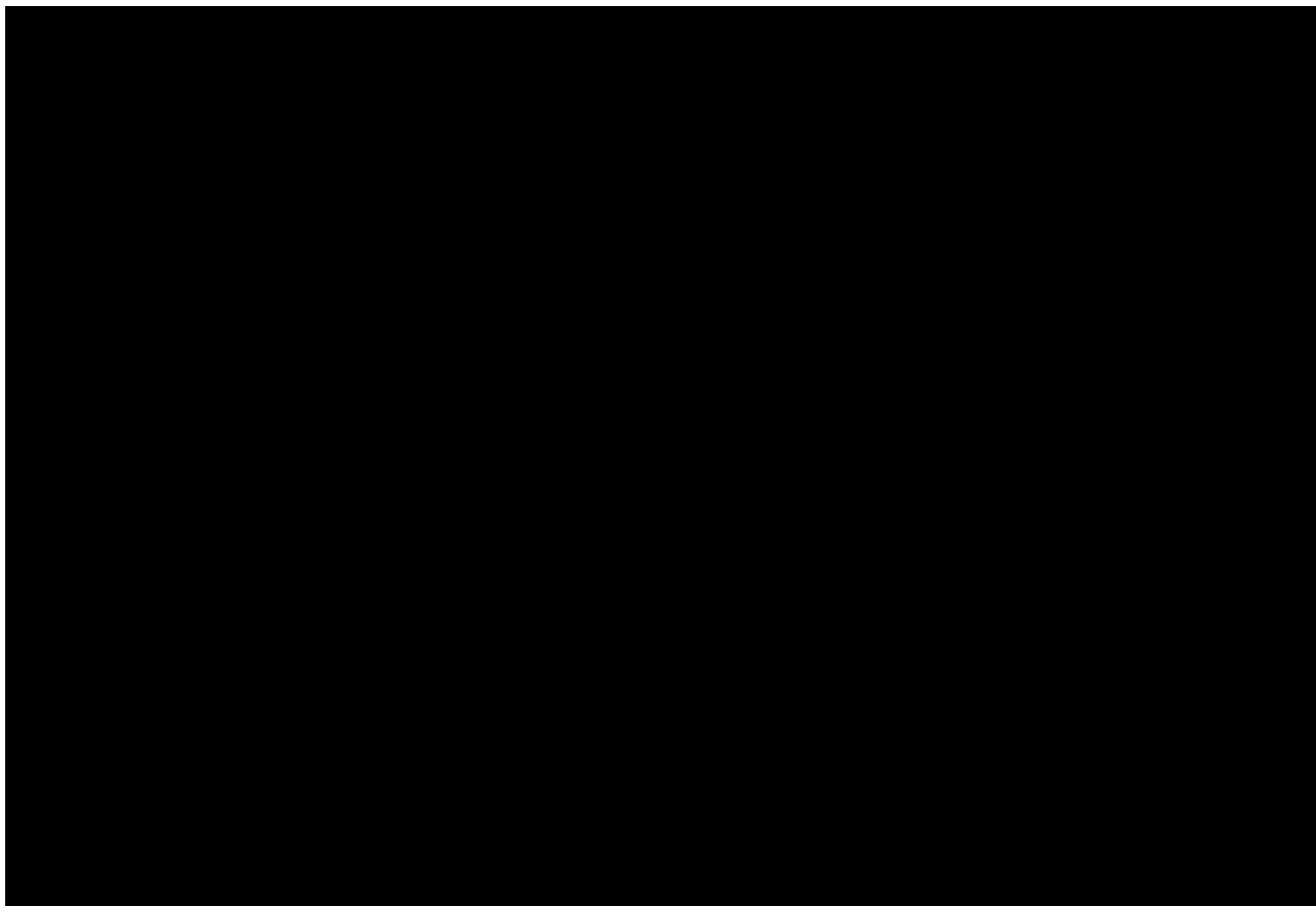
**First Small Arm Utilizing Simulation-Based Methodology
Weapon Designed to Minimize Support Cost**

Mk19 – 500 parts

M2 – 397 parts

NOTE: 6,063 fired on DG1 & 1200 on prototype







USER JURY
DURING SYSTEM INTEGRATION TEST – NOV 00

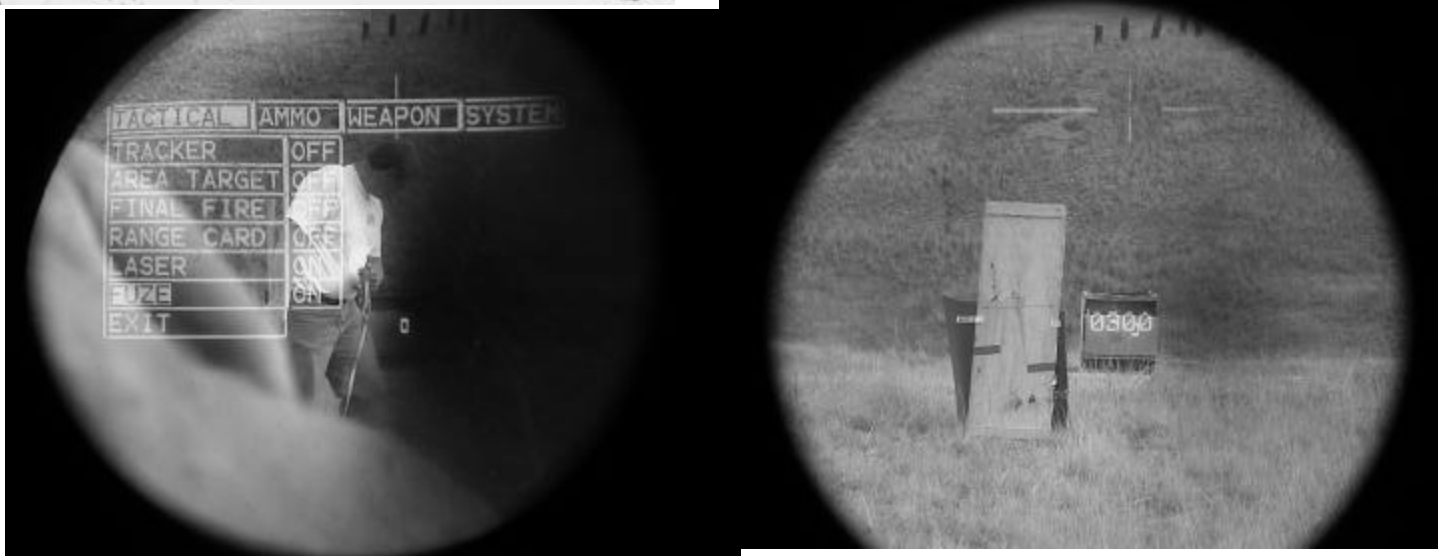


Camp Pendleton, CA – 13/14 Nov 00





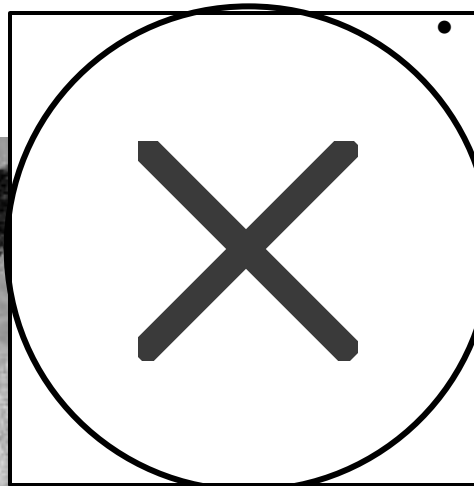
USER JURY DURING SYSTEM INTEGRATION TEST – NOV 00





OBJECTIVE CREW SERVED WEAPON ATD

DTO: WE.34



Full Solution Fire Control

- 2.2 km range performance
- ± 1 meter laser rangefinder
- Ballistic processor
- Single reticle
- Fuze setter
- Digital compass
- Embedded training
- MILES/CIDDS
- Thermal Interface
- Direct view optics 5x9.5° FOV
- Land Warrior ready
- Full FOV laser steering
- Motion tracker



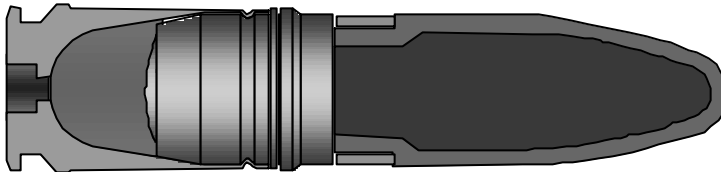


OCSW BALLISTICALLY MATCHED 25MM AMMUNITION FAMILY



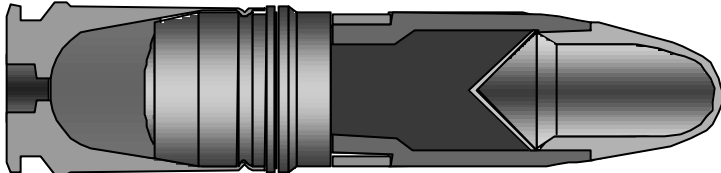
- Aluminum Cartridge Case
- Standard Ball Propellant
- Standard Percussion Primer

HE Cartridge



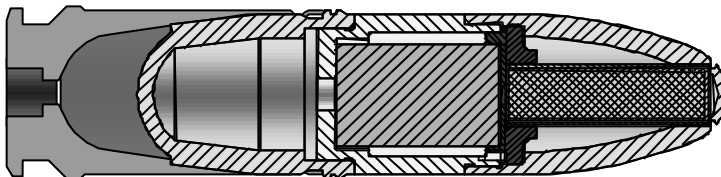
- Prescored Steel Warhead
- LX-14 High Explosive
- Defeats PASGT Vest & Helmet

AP Cartridge



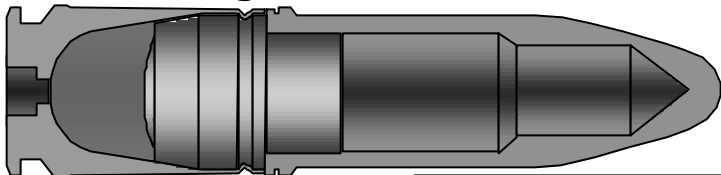
- 51mm RHA (Threshold)
- 51mm HHA (Goal)

TP-S Cartridge



- Flash Bang Training

TP Cartridge



- Two-Piece Projectile
- Integral Rotating Band



HE AMMUNITION STATUS

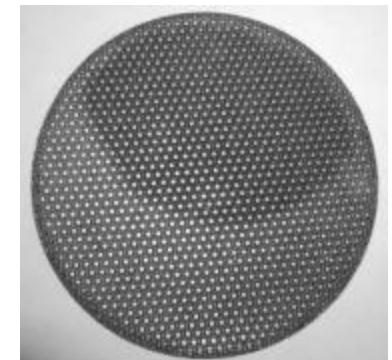
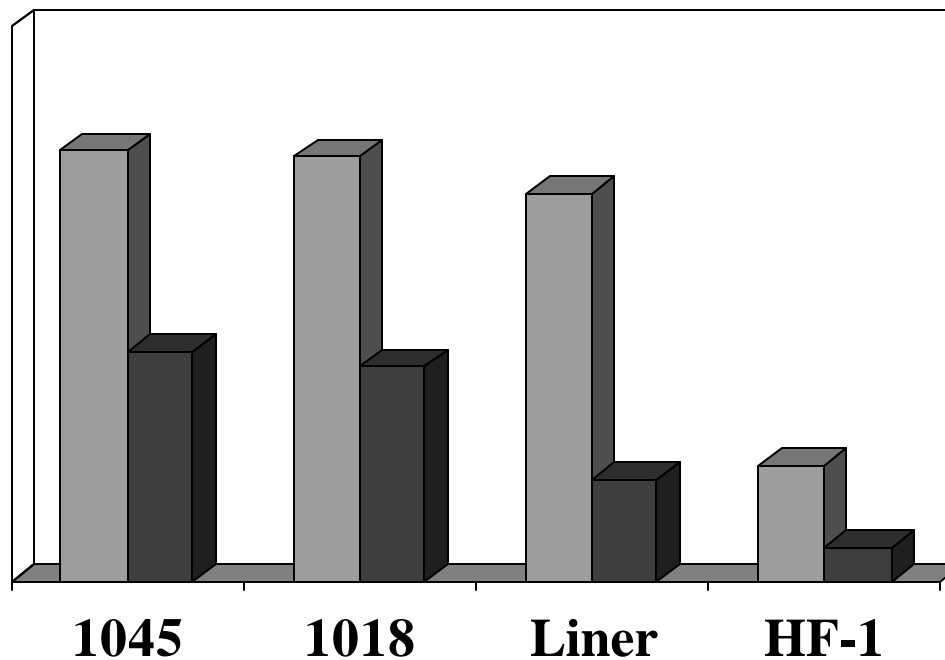
WARHEAD MTO

Water tank frag tests recently completed for Blank, Cup and Draw (BCD) 1018 and 1045 Steel Bodies parallel IR&D Effort for .030 Inch Copper Liners.

Latest results show BCD warheads demonstrated best % lethal frags per warhead so far.

Copper liner was last best design.

HF1 naturally fragmenting steel was a previous MTO warhead iteration.





OBJECTIVE CREW SERVED WEAPON FY01 PLANNED ACCOMPLISHMENTS



- ✓ Demonstrated Gun-launched (**Burst Mode**) Fully Functional (no PD/SD) Fuze With TP-Spotter Precision Airburst (OICW Lesson Learned)
- ✓ Land Warrior Interface and Thermal Module Interface Capability Demonstrated.
- ✓ Utilizing Integrated Crew Served Fire Control (Leveraged From OICW ATD; STO III.I.1) With Deliverable Weapon for Precision Airburst (Incl Rapid Fire) TP-Spotter.
 - Perform Crew Served Fire Control Evaluation and Refinement of Target Tracking Coupled Laser Steering in Operational Setting.
 - Plan and Prepare for ATD Technical and Troop Testing.
 - Complete Virtual OCSW Simulator for Training Support
 - Demonstrate Gun-launched (Burst Mode) Fully Function Fuze (Include PD/SD) of Airbursting High Explosive Munition.



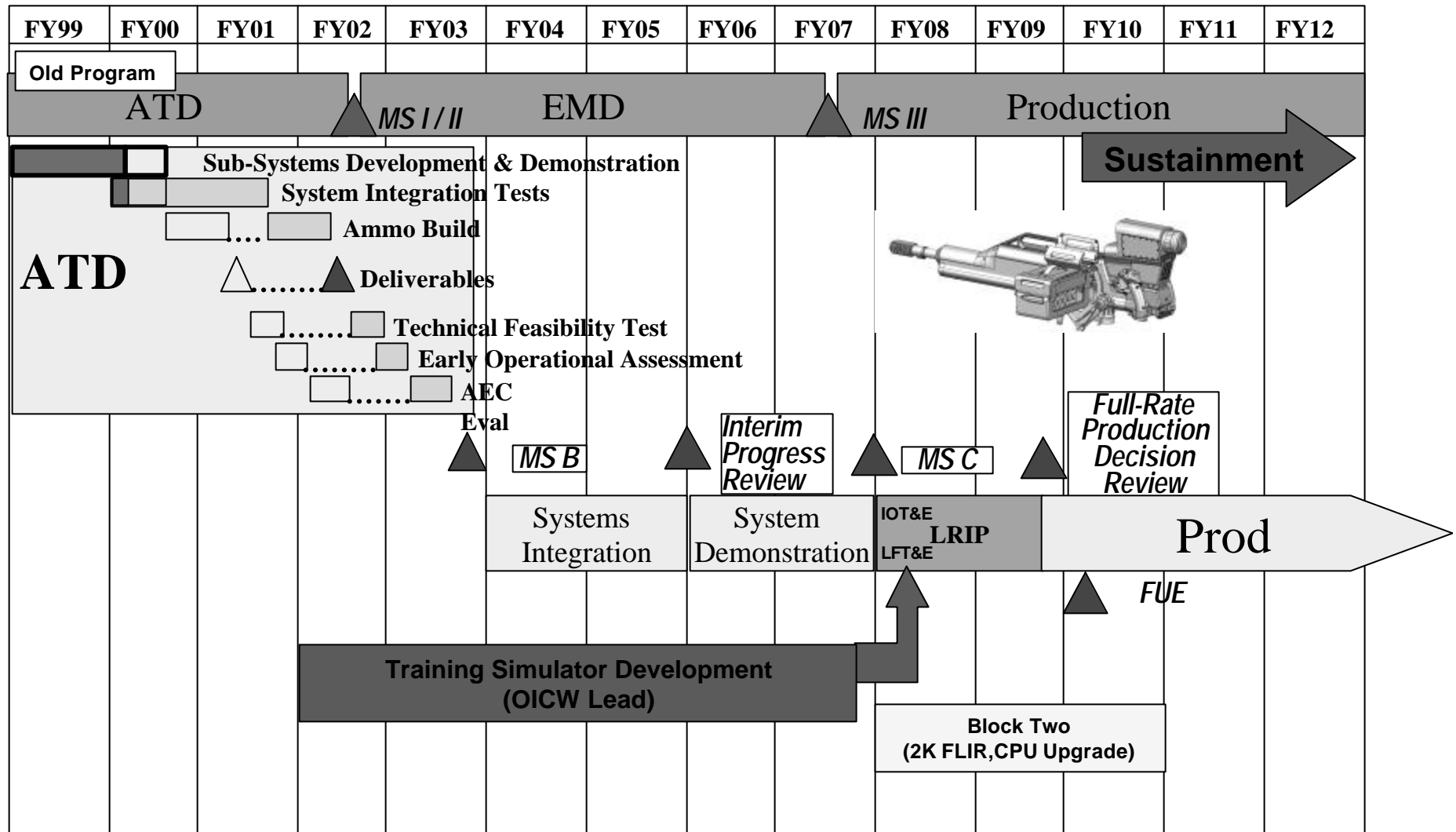
OBJECTIVE CREW SERVED WEAPON FY02 PLANNED ACCOMPLISHMENTS



- Complete Build Deliverable Systems #2 and #3.
- Complete Build Ammunition to Support Government ATD Testing
- Conduct Government Technical Feasibility and Safety Tests
- Conduct User Training with Virtual OCSW Simulator
- Complete Plan for ATD Technical and Troop Testing (Early Operational Assessment).



OBJECTIVE CREW SERVED WEAPON ATD TRANSITION ROADMAP

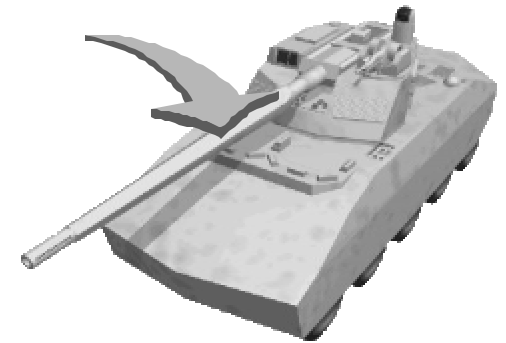
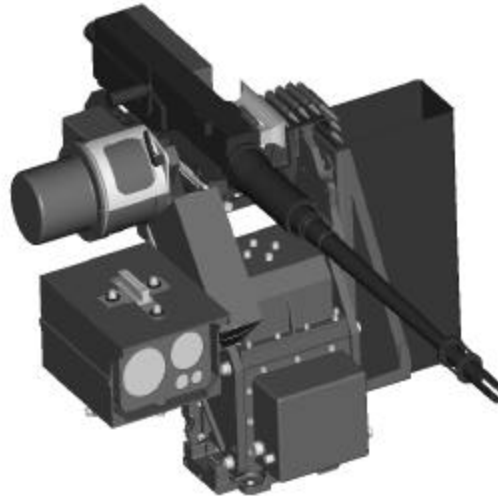




OCSW AS REMOTELY OPERATED SECONDARY ARMAMENT



*Potential Armament
in Common Remote
Operated Weapon
Station (CROWS)*



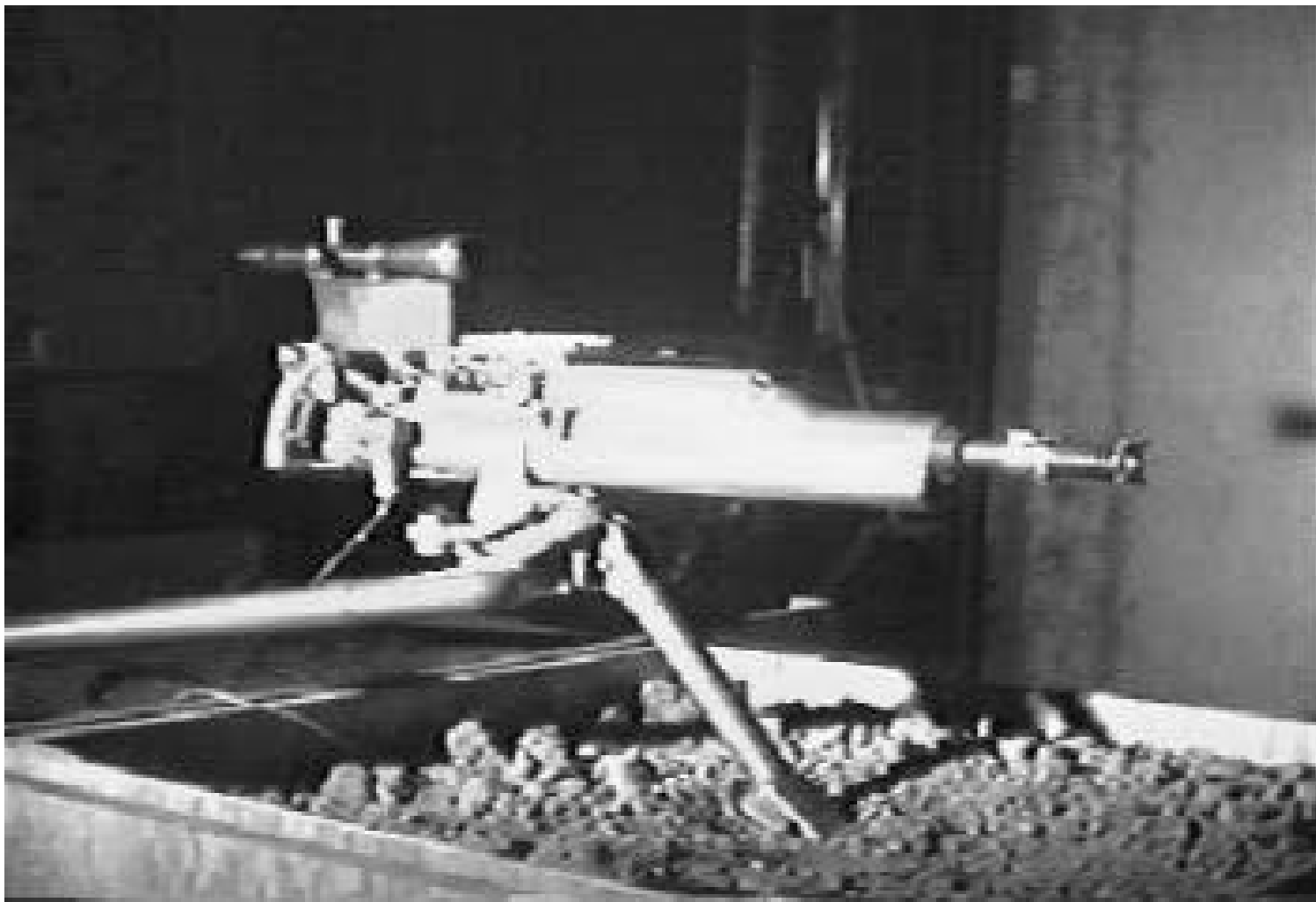
*Candidate Secondary
Armament for Future
Infantry Vehicles*



Track Vehicle Application



*Potential Application as Defensive
Armament for Crusader SPH and RSV*





OBJECTIVE CREW SERVED WEAPON SUMMARY & RECOMMENDATIONS



- **Summary**

- ATD Technologies On-Track to Meet Exit Criteria
- PM On-Board for Transition Planning
- Work On-Going to Close Gap Between ORD and Exit Criteria
- Restructured Program will Allow Further Development of Fuze and TA/FC (Risk Reduction)
- OCSW is Prime for Vehicle Applications

